FIG. 1A

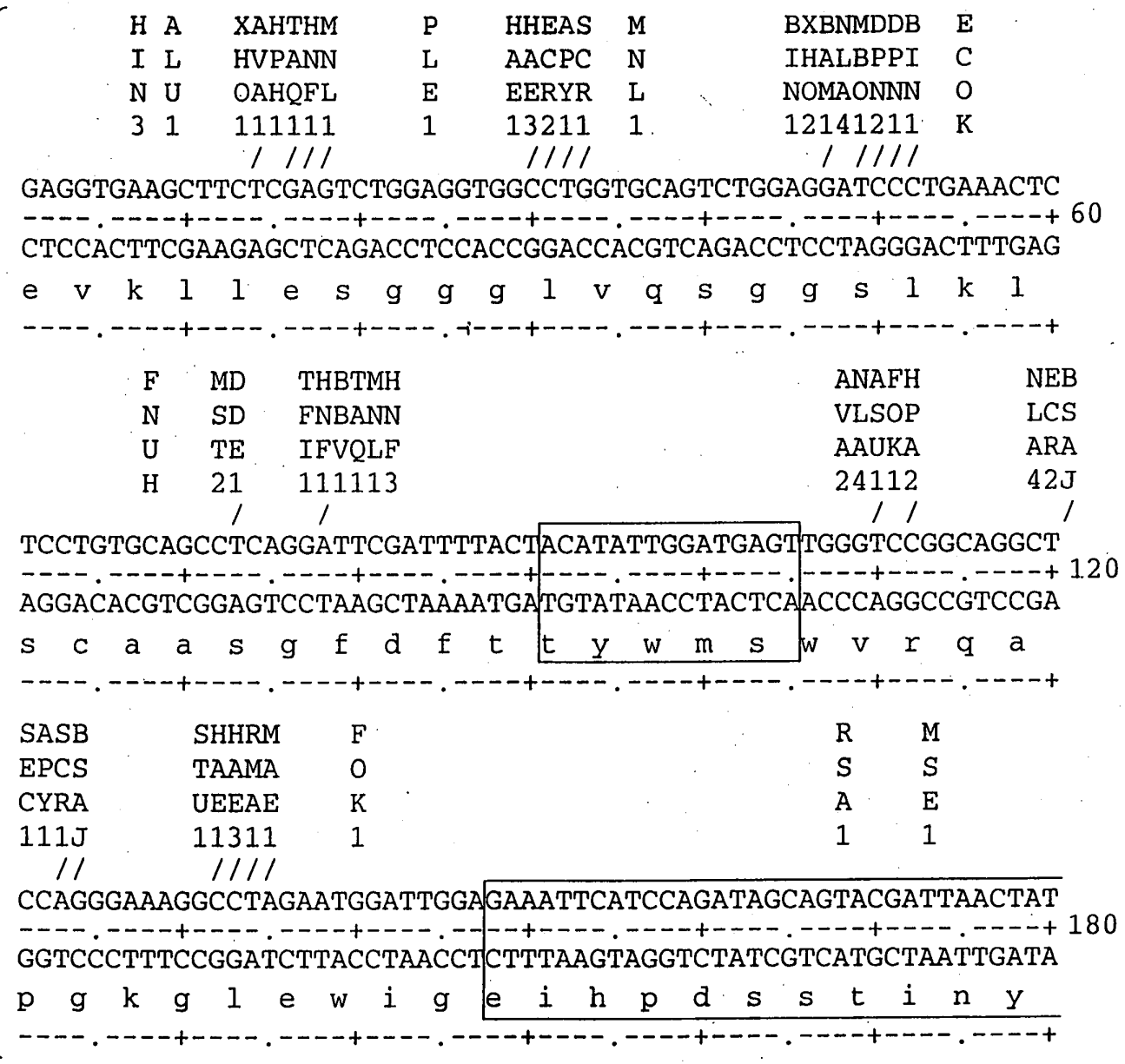

H A XAHTHM P HHEAS M BXBNMDDB E
I L HVPANN L AACPC N IHALBPPI C
N U OAHQFL E EERYR L NOMAONNN O
3 1 111111 1 13211 1 12141211 K
GAGGTGAAGCTTCTCGAGTCTGGAGGTGGCCTGGTGCAGTCTGGAGGATCCCTGAAACTC
CTCCACTTCGAAGAGCTCAGACCTCCACCGGACCACGTCAGACCTCCTAGGGACTTTGAG
60
e v k l l e s g g g l v q s g g s l k l
F MD THBTMH ANAFH NEB
N SD FNBANN VLSOP LCS
U TE IFVQLF AAUKA ARA
H 21 111113 24112 42J
TCCTGTGCAGCCTCAGGATTCGATTTTACTACATATTGGATGAGTTGGGTCCGGCAGGCT
AGGACACGTCGGAGTCCTAAGCTAAAATGATGTATAACCTACTCAACCCAGGCCGTCCGA
120
s c a a s g f d f t t y w m s w v r q a
SASB SHHRM F R M
EPCS TAAMA O S S
CYRA UEEAE K A E
111J 11311 1 1 1
CCAGGGAAAGGCCTAGAATGGATTGGAGAAATTCATCCAGATAGCAGTACGATTAACTAT
GGTCCCTTTCCGGATCTTACCTAACCTCTTTAAGTAGGTCTATCGTCATGCTAATTGATA
180
p g k g l e w i g e i h p d s s t i n y

FIG. 1B

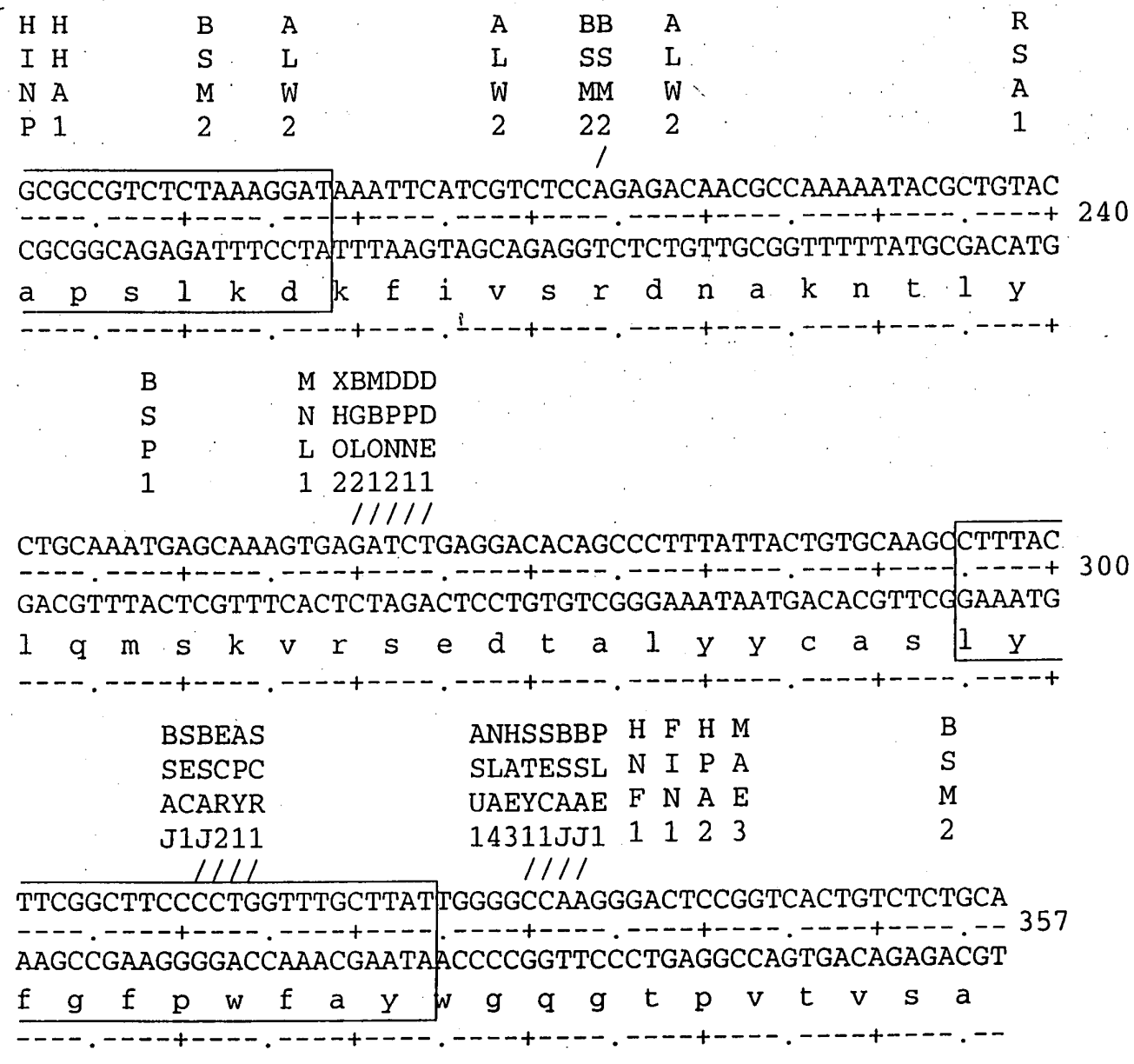

H H B A A BB A R
I H S L L SS L S
N A M W W MM W A
P 1 2 2 2 22 2 1
GCGCCGTCTCTAAAGGATAAATTCATCGTCTCCAGAGACAACGCCAAAAATACGCTGTAC
CGCGGCAGAGATTTCCTATTTAAGTAGCAGAGGTCTCTGTTGCGGTTTTTATGCGACATG
a p s l k d k f i v s r d n a k n t l y
240
B M XBMDDD
S N HGBPPD
P L OLONNE
1 1 221211
CTGCAAATGAGCAAAGTGAGATCTGAGGACACAGCCCTTTATTACTGTGCAAGCCTTTAC
GACGTTTACTCGTTTCACTCTAGACTCCTGTGTCGGGAAATAATGACACGTTCGGAAATG
l q m s k v r s e d t a l y y c a s l y
300
BSBEAS ANHSSBBP H F H M B
SESCPC SLATESSL N I P A S
ACARYR UAEYCAAE F N A E M
J1J211 14311JJ1 1 1 2 3 2
TTCGGCTTCCCCTGGTTTGCTTATTGGGGCCAAGGGACTCCGGTCACTGTCTCTGCA
AAGCCGAAGGGGACCAAACGAATAACCCCGGTTCCCTGAGGCCAGTGACAGAGACGT
f g f p w f a y w g q g t p v t v s a
357

FIG. 2A

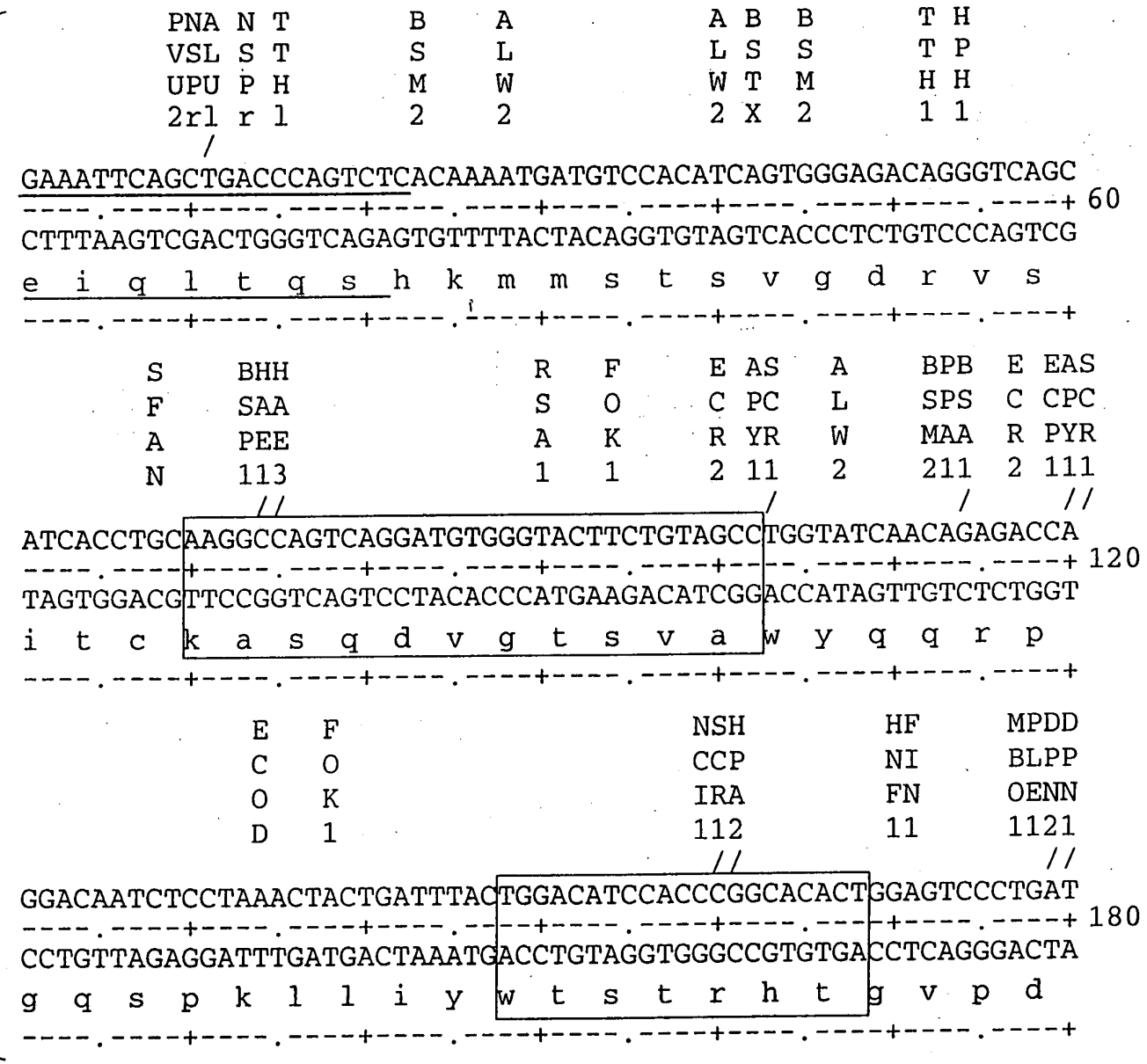

PNA N T B A A B B T H
VSL S T S L L S S T P
UPU P H M W W T M H H
2rl r l 2 2 2 X 2 1 1
GAAATTCAGCTGACCCAGTCTCACAAAATGATGTCCACATCAGTGGGAGACAGGGTCAGC
CTTTAAGTCGACTGGGTCAGAGTGTTTTACTACAGGTGTAGTCACCCTCTGTCCCAGTCG
60
e i q l t q s h k m m s t s v g d r v s
S BHH R F E AS A BPB E EAS
F SAA S O C PC L SPS C CPC
A PEE A K R YR W MAA R PYR
N 113 1 1 2 11 2 211 2 111
ATCACCTGCAAGGCCAGTCAGGATGTGGGTACTTCTGTAGCCTGGTATCAACAGAGACCA
TAGTGGACGTTCCGGTCAGTCCTACACCCATGAAGACATCGGACCATAGTTGTCTCTGGT
120
i t c k a s q d v g t s v a w y q q r p
E F NSH HF MPDD
C O CCP NI BLPP
O K IRA FN OENN
D 1 112 11 1121
GGACAATCTCCTAAACTACTGATTTACTGGACATCCACCCGGCACACTGGAGTCCCTGAT
CCTGTTAGAGGATTTGATGACTAAATGACCTGTAGGTGGGCCGTGTGACCTCAGGGACTA
180
g q s p k l l i y w t s t r h t g v p d

FIG. 2B

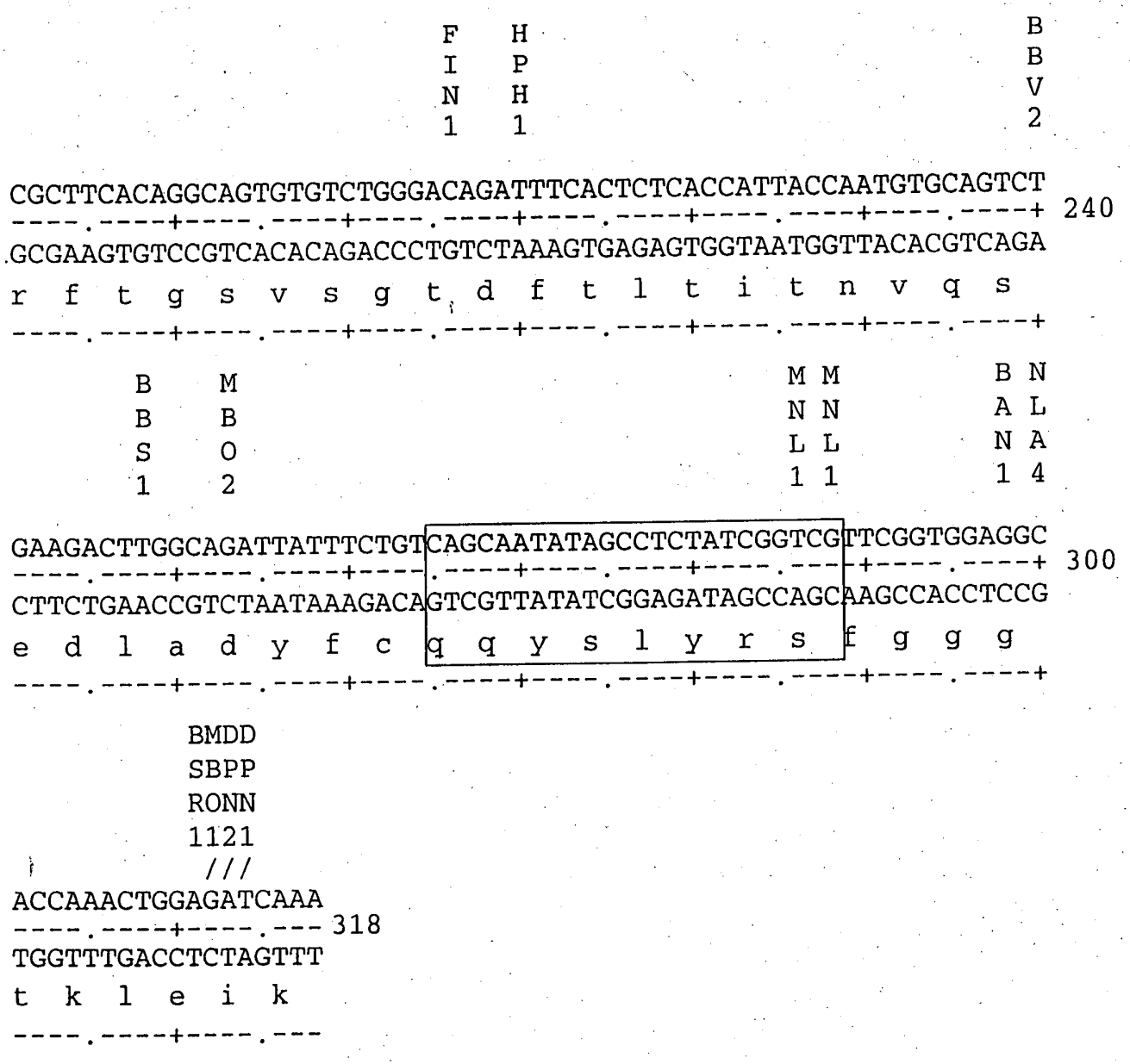

F H
I P
N H
1 1
B
B
V
2
CGCTTCACAGGCAGTGTGTCTGGGACAGATTTCACTCTCACCATTACCAATGTGCAGTCT
GCGAAGTGTCCGTCACACAGACCCTGTCTAAAGTGAGAGTGGTAATGGTTACACGTCAGA
240
r f t g s v s g t d f t l t i t n v q s
B M
B B
S O
1 2
M M
N N
L L
1 1
B N
A L
N A
1 4
GAAGACTTGGCAGATTATTTCTGTCAGCAATATAGCCTCTATCGGTCGTTCGGTGGAGGC
CTTCTGAACCGTCTAATAAAGACAGTCGTTATATCGGAGATAGCCAGCAAGCCACCTCCG
300
e d l a d y f c q q y s l y r s f g g g
BMDD
SBPP
RONN
1121
///
ACCAAACTGGAGATCAAA
TGGTTTGACCTCTAGTTT
318
t k l e i k

FIG. 3

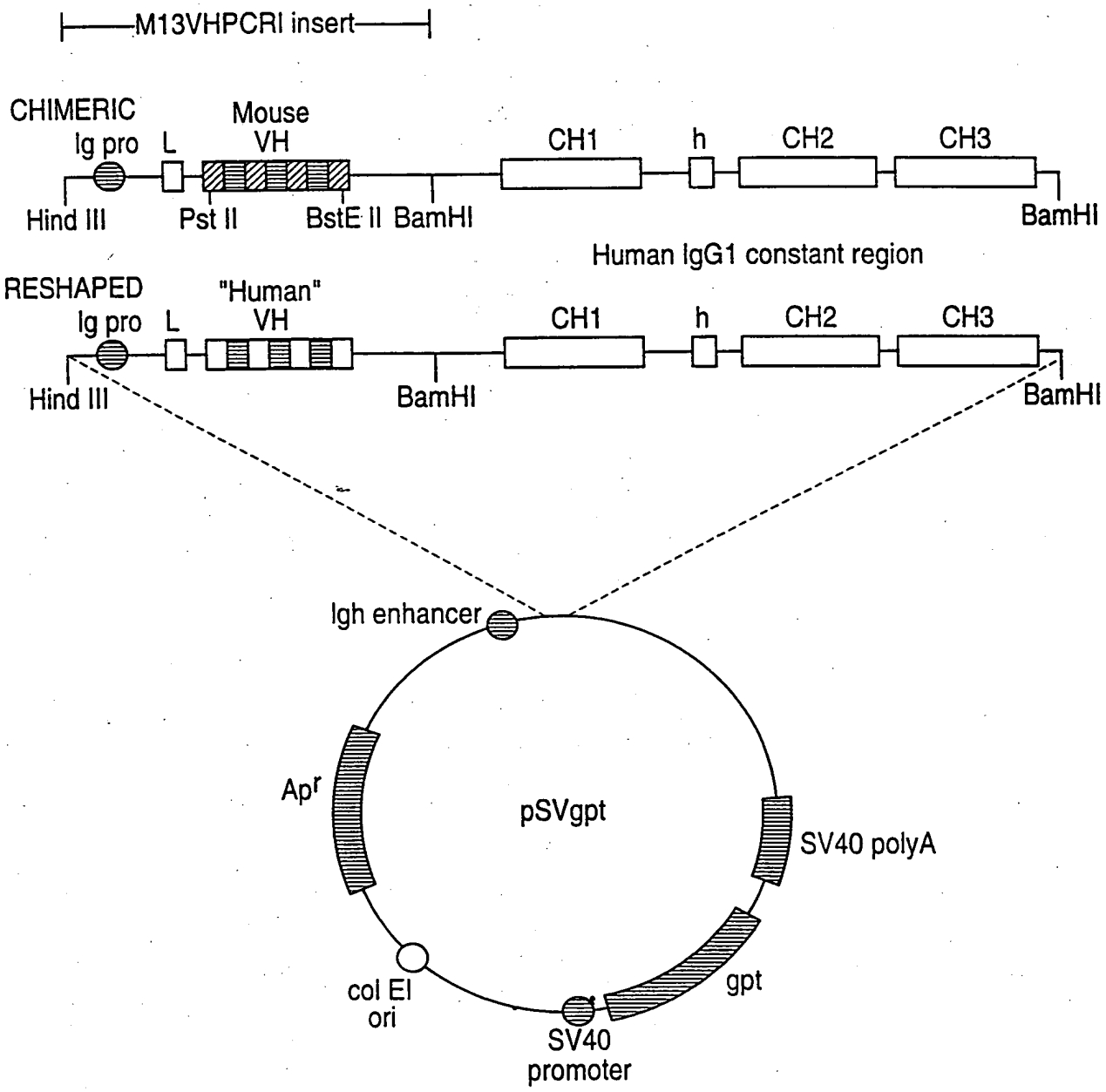

M13VHPCRI insert
CHIMERIC
Ig pro
L
Mouse
VH
CH1
h
CH2
CH3
Hind III
Pst II
BstE II
BamHI
BamHI
Human IgG1 constant region
RESHAPED
Ig pro
L
"Human"
VH
CH1
h
CH2
CH3
Hind III
BamHI
BamHI
Igh enhancer
Apr
pSVgpt
SV40 polyA
col El
ori
gpt
SV40
promoter

FIG. 4

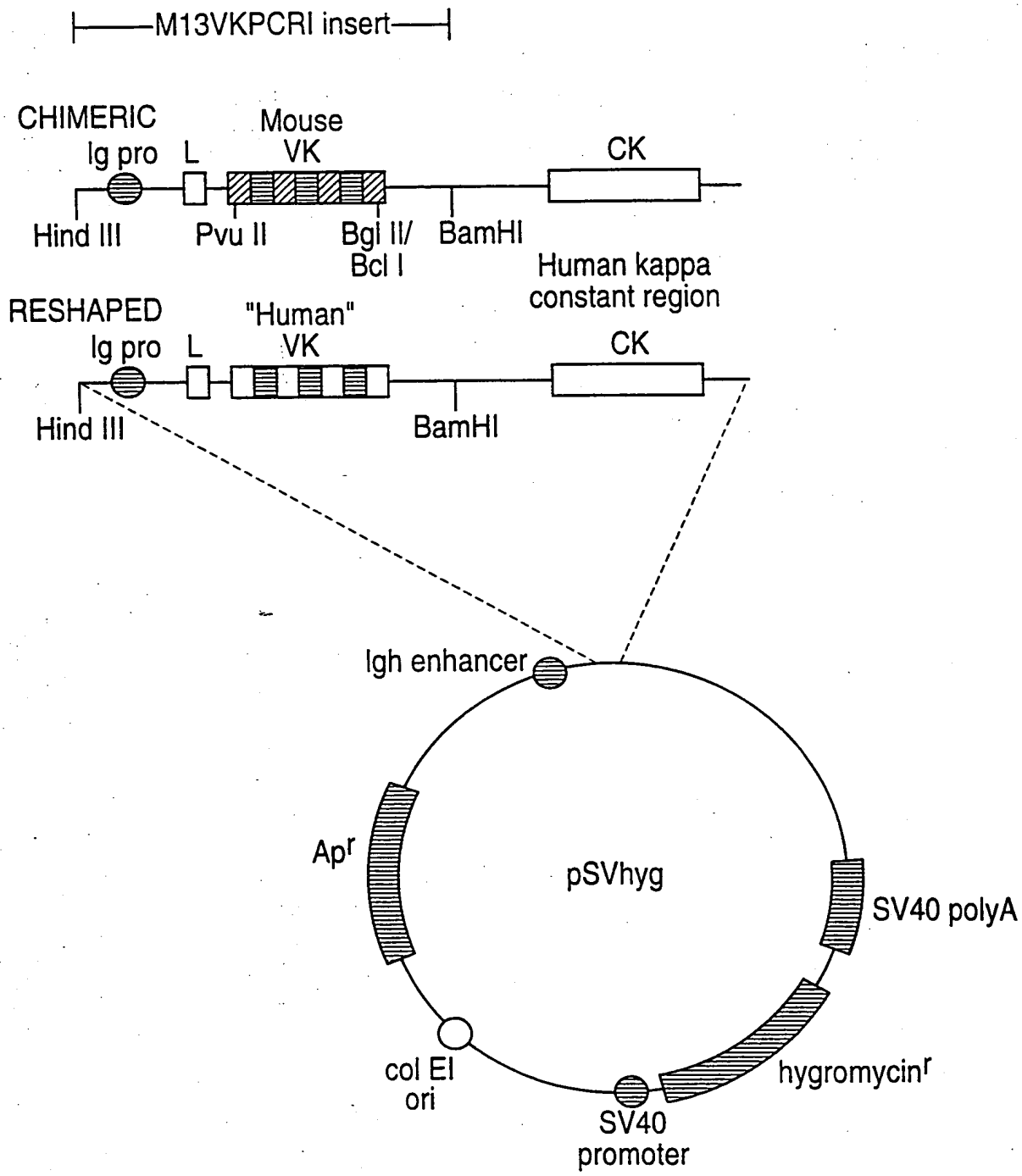

M13VKPCRI insert
CHIMERIC
Ig pro
L
Mouse
VK
CK
Hind III
Pvu II
Bgl II/
Bcl I
BamHI
Human kappa
constant region
RESHAPED
Ig pro
L
"Human"
VK
CK
Hind III
BamHI
Igh enhancer
Ap^r
pSVhyg
SV40 polyA
col EI
ori
SV40
promoter
hygromycin^r

FIG. 5A

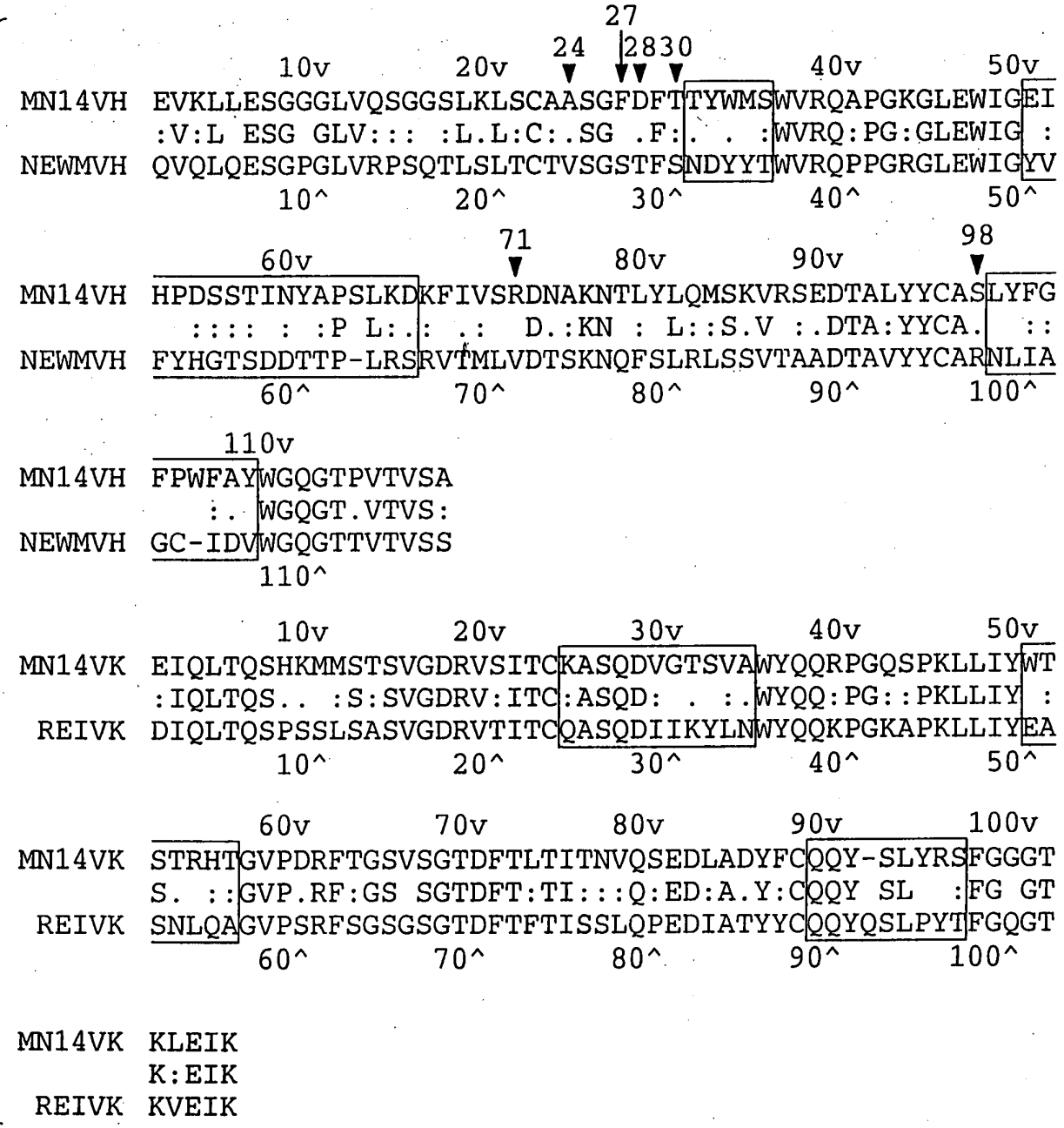

MN14VH EVKLLESGGGLVQSGGSLKLSCAASGFDFTTYWMSWVRQAPGKGLEWIGEI
NEWMVH QVQLQESGPGLVRPSQTLSLTCTVSGSTFSNDYYTWVRQPPGRGLEWIGYV
MN14VH HPDSSTINYAPSLKDKFIVSRDNAKNTLYLQMSKVRSEDTALYYCASLYFG
NEWMVH FYHGTSDDTTP-LRSRVTMLVDTSKNQFSLRLSSVTAADTAVYYCARNLIA
MN14VH FPWFAYWGQGTPVTVSA
NEWMVH GC-IDVWGQGTTVTVSS
MN14VK EIQLTQSHKMMSTSVGDRVSITCKASQDVGTSVAWYQQRPGQSPKLLIYWT
REIVK DIQLTQSPSSLSASVGDRVTITCQASQDIIKYLNWYQQKPGKAPKLLIYEA
MN14VK STRHTGVPDRFTGSVSGTDFTLTITNVQSEDLADYFCQQY-SLYRSFGGGT
REIVK SNLQAGVPSRFSGSGSGTDFTFTISSLQPEDIATYYCQQYQSLPYTFGQGT
MN14VK KLEIK
REIVK KVEIK

FIG. 5B

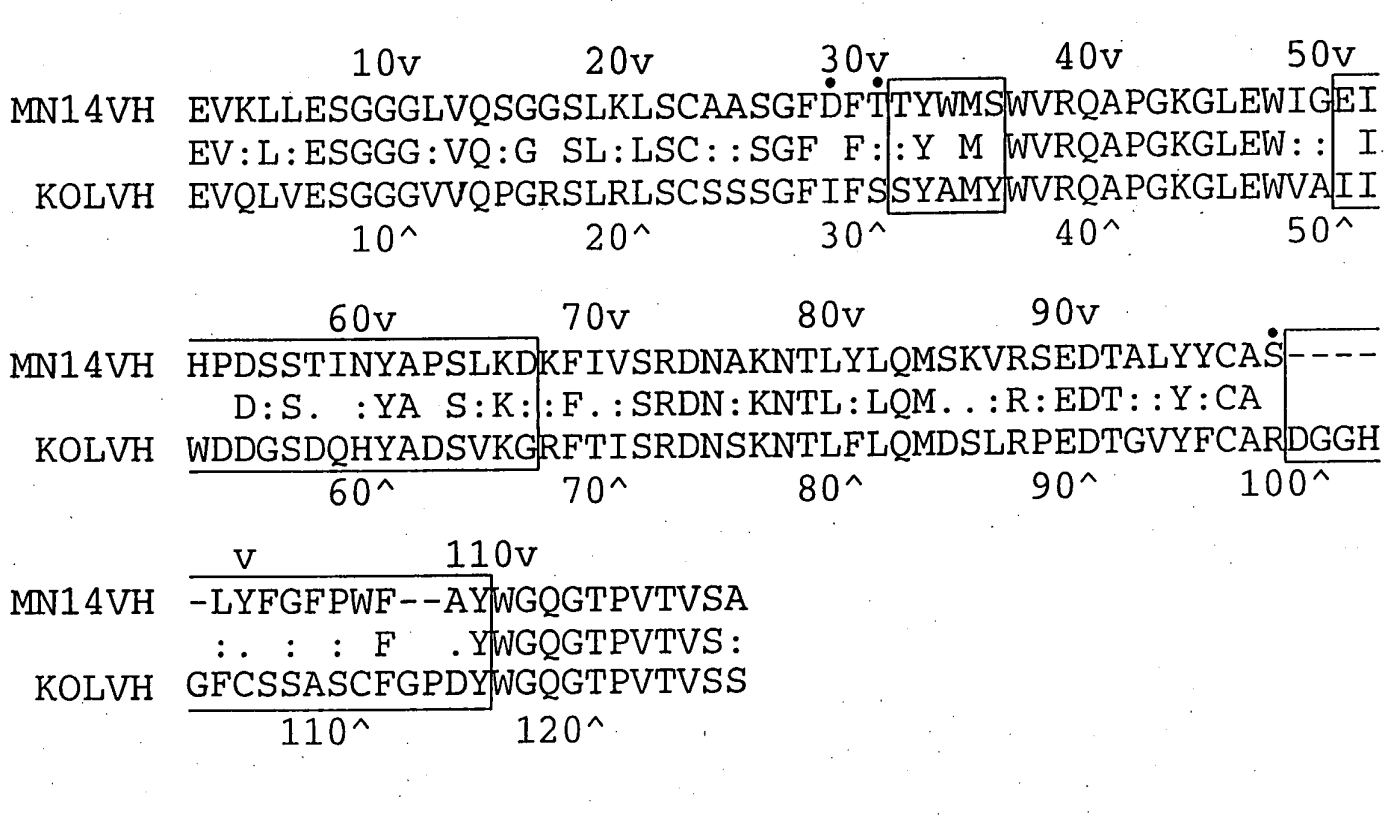
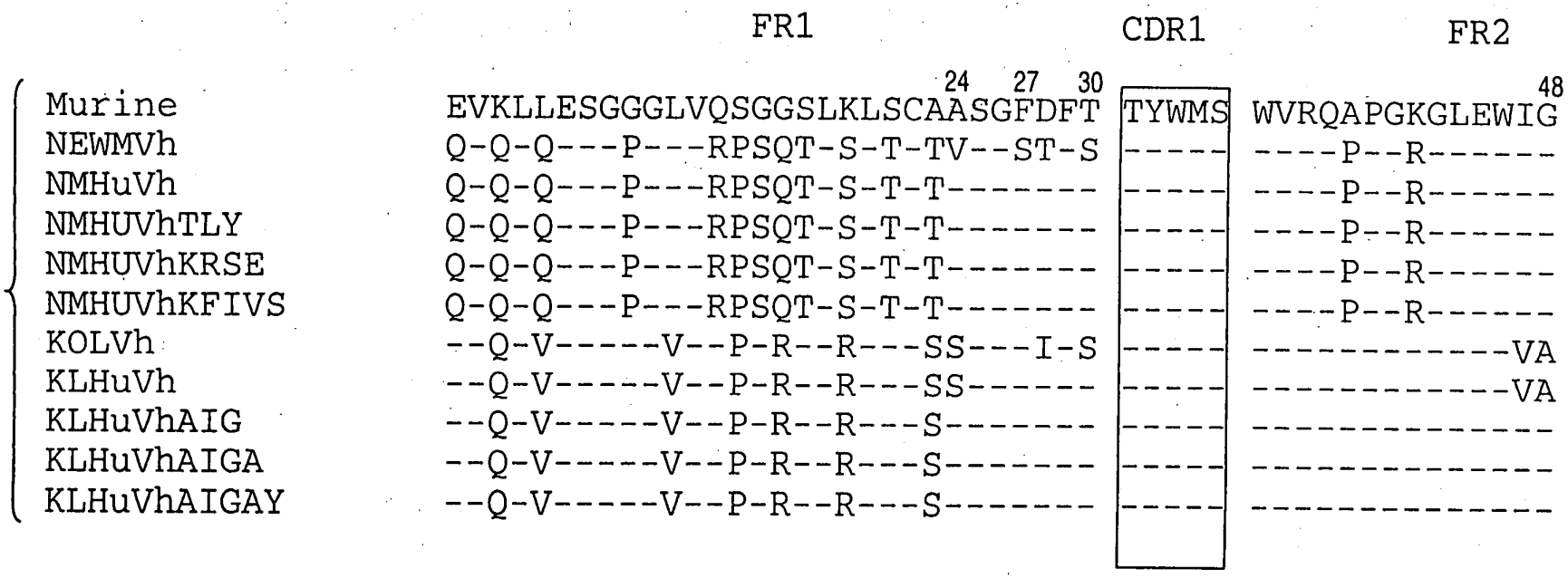
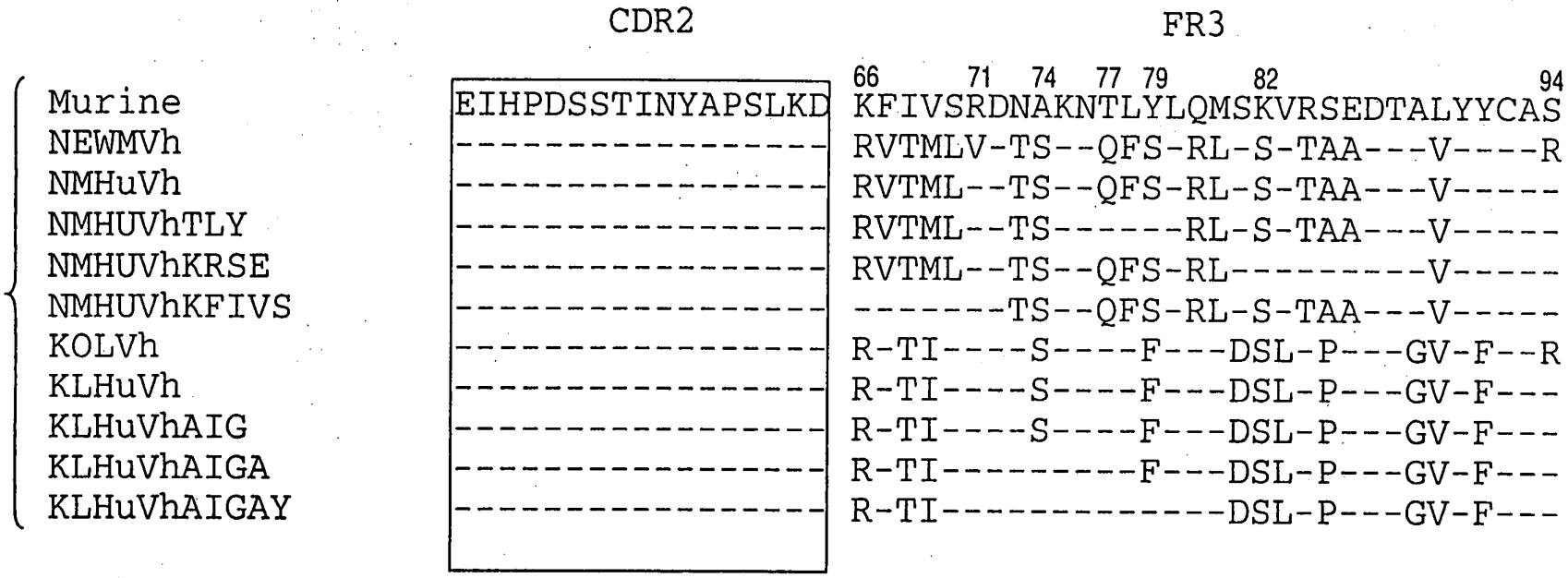

10v 20v 30v 40v 50v
MN14VH EVKLLESGGGLVQSGGSLKLSCAASGFDFTTYWMSWVRQAPGKGLEWIGEI
EV:L:ESGGG:VQ:G SL:LSC::SGF F::Y M WVRQAPGKGLEW:: I
KOLVH EVQLVESGGGVVQPGRSLRLSCSSSGFIFSSYAMYWVRQAPGKGLEWVAII
10^ 20^ 30^ 40^ 50^
60v 70v 80v 90v
MN14VH HPDSSTINYAPSLKDKFIVSRDNAKNTLYLQMSKVRSEDTALYYCAS----
D:S. :YA S:K::F.:SRDN:KNTL:LQM..:R:EDT::Y:CA
KOLVH WDDGSDQHYADSVKGRFTISRDNSKNTLFLQMDSLRPEDTGVYFCARDGGH
60^ 70^ 80^ 90^ 100^
v 110v
MN14VH -LYFGFPWF--AYWGQGTPVTVSA
:. : : F .YWGQGTPVTVS:
KOLVH GFCSSASCFGPDYWGQGTPVTVSS
110^ 120^

FIG. 6A



Title: CDR Grafted Type III Anti-cea Humanized Mouse Monoclonal Antibodies
Inventor(s): Hans J. HANSEN et al.
Atty. Docket No.: 018733-1127

FIG. 6B

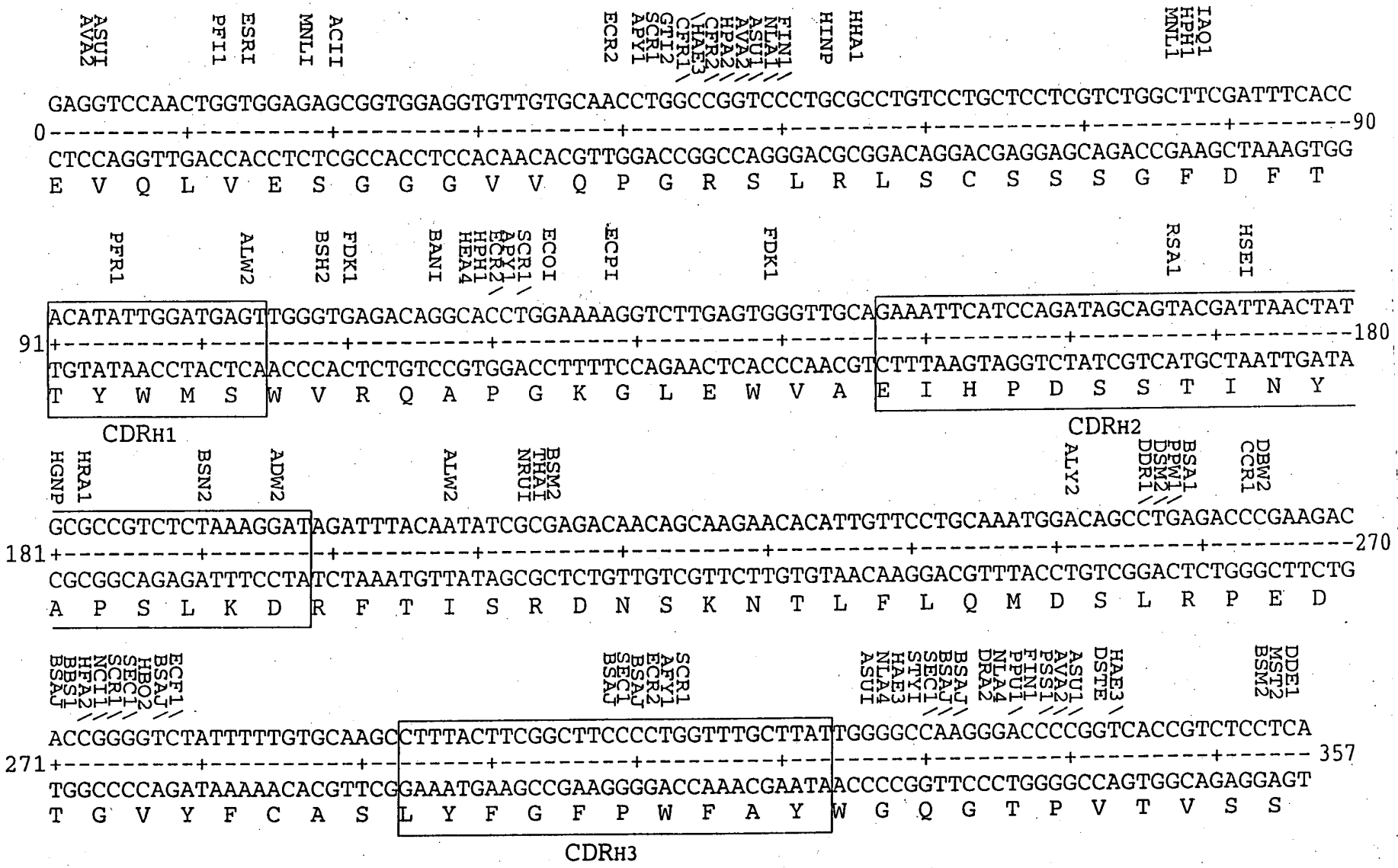


Title: CDR Grafted Type III Anti-cea Humanized Mouse Monoclonal Antibodies
Inventor(s): Hans J. HANSEN et al.
Atty. Docket No.: 018733-1127

FIG. 6C

	CDR3	FR4
Murine	LYFGFPWFAY	WGQGTPVTVSA
NEWMVh	----------	----T-----S
NMHuVh	----------	----T-----S
NMHUVhTLY	----------	----T-----S
NMHUVhKRSE	----------	----T-----S
NMHUVhKFIVS	----------	----T-----S
KOLVh	----------	----------S
KLHuVh	----------	----------S
KLHuVhAIG	----------	----------S
KLHuVhAIGA	----------	----------S
KLHuVhAIGAY	----------	----------S

FIG. 7



Title: CDR Grafted Type III Anti-cea Humanized Mouse Monoclonal Antibodies
Inventor(s): Hans J. HANSEN et al.
Atty. Docket No.: 018733-1127

FIG. 8

Title: CDR Grafted Type III Anti-cea Humanized Mouse Monoclonal Antibodies
Inventor(s): Hans J. HANSEN et al.
Atty. Docket No.: 018733-1127

Title: CDR Grafted Type III Anti-cea Humanized Mouse Monoclonal Antibodies
Inventor(s): Hans J. HANSEN et al.
Atty. Docket No.: 018733-1127

FIG. 9

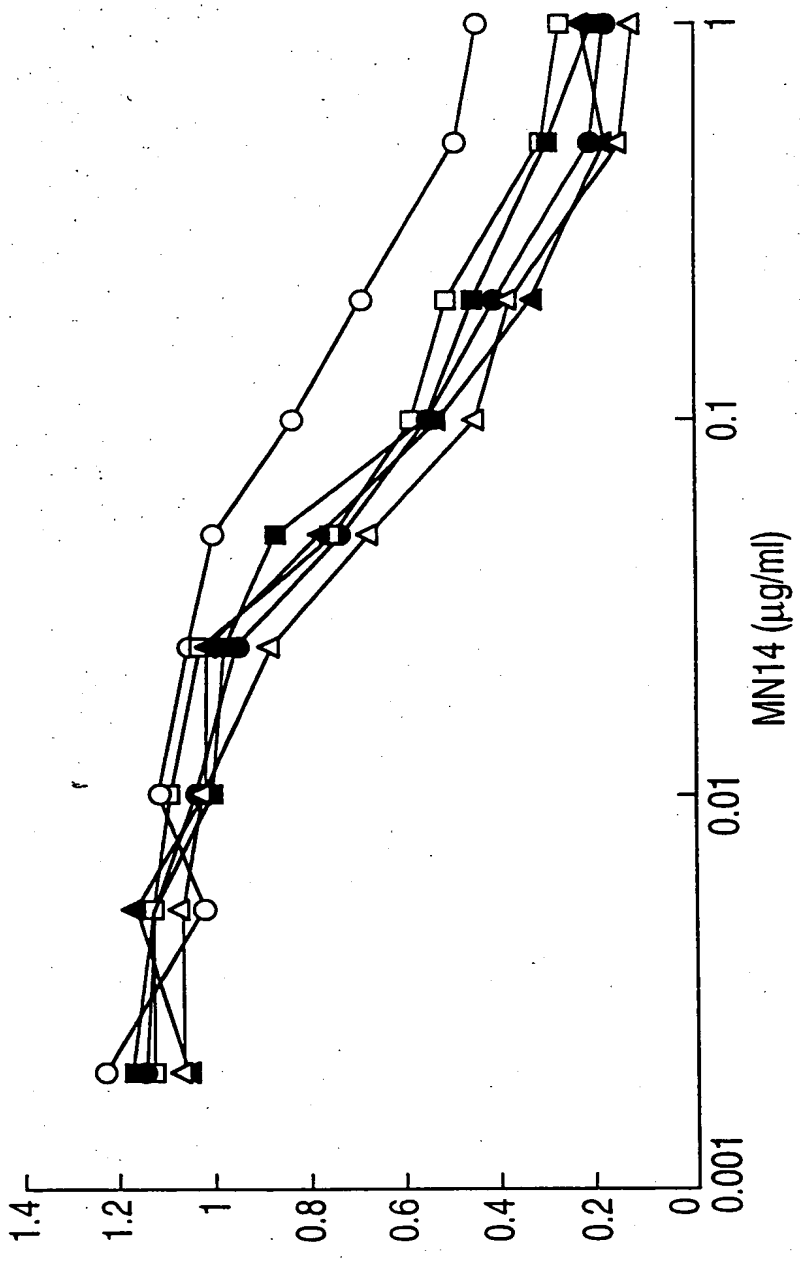


FIG. 10

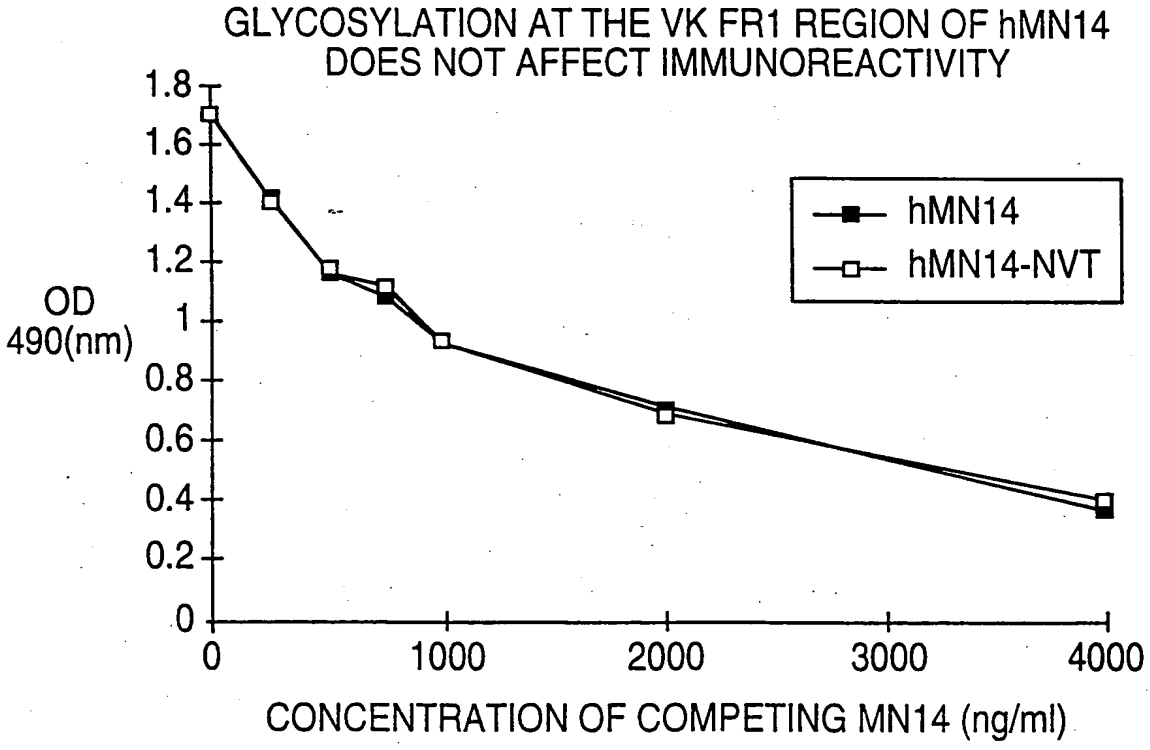

GLYCOSYLATION AT THE VK FR1 REGION OF hMN14
DOES NOT AFFECT IMMUNOREACTIVITY
OD
490(nm)
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
0
1000
2000
3000
4000
CONCENTRATION OF COMPETING MN14 (ng/ml)
hMN14
hMN14-NVT

FIG. II